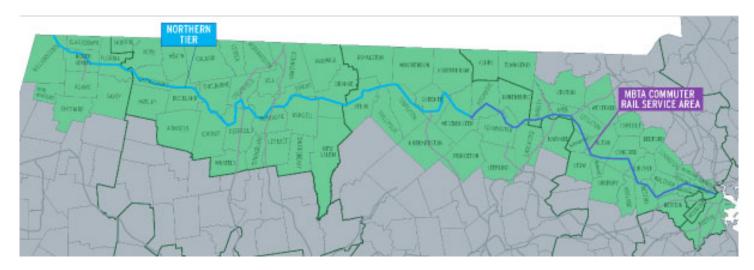


Northern Tier Passenger Rail Study Working Group Meeting #2



Northern Tier Passenger Rail Study Working Group Meeting #2

Evaluation of passenger rail alternatives along the Northern Tier Corridor of western Massachusetts.



Please scroll down to move through this virtual on-demand meeting.

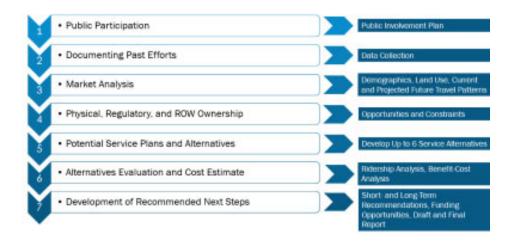
This meeting was presented to the Northern Tier Passenger Rail Study Working Group and the public on June 22, 2022.

Agenda

1. Study Overview

- 2. Summary of Working Group Meeting #1
- 3. Update on Study Goals and Objectives
- 4. Review of Past Efforts
- 5. Current Conditions: Market Analysis
- 6. Current Conditions: Ownership, Operations, Right-of-Way
- 7. Issues and Opportunities Discussion
- 8. Next Steps
- 9. Public Comment

Study Overview



Summary of Working Group Meeting #1

How did we use the feedback received?

Feedback from Working Group Meeting #1 was utilized to guide the development of goals and objectives for the Study. During the meeting, a poll asked attendees about their top priorities for the Study. There were 64 poll respondents at the Working Group meeting and 10 additional respondents through the post-meeting survey.

Update on Study Goals and Objectives

Goals and objectives were developed based on Working Group and public feedback. The updated goals and objectives for the Study are:

Goal: Support economic development along the Northern Tier corridor

- a. Objective: Improve connectivity and access to destinations(e.g., jobs and services, academic institutions, tourist attractions, etc.)
- b. Objective: Support the advancement of relevant economic development-related policies, plans, and designations
- c. Objective: Minimize impacts to freight rail operations

Goal: Promote transportation equity

- a. Objective: Increase mobility options between Western and Eastern Massachusetts
- b. Objective: Improve connectivity and reliability
- c. Objective: Enhance safety

Goal: Minimize impacts on public health and the environment from transportation

- a. Objective: Improve public health outcomes
- b. Objective: Minimize air/noise pollution and greenhouse gas emissions
- c. Objective: Minimize or avoid impacts to cultural or natural resources

Questions and Comments

Review of Past Efforts

- The Study team reviewed 25 past studies, consisting of:
 - o Passenger rail and transportation studies
 - o Municipal transportation plans/studies
 - o Economic development studies
- The Study team identified information related to:

- o Demographics
- o Rail Infrastructure Conditions
- o Environmental Resources
- Travel Patterns and/or Trends
- Future Conditions

Key Takeaways:

- No previous corridor-wide evaluation of travel conditions along Route 2
- Most transportation planning has been focused more on local travel
- Opportunity for passenger rail service to tie into economic development efforts throughout the study area
- Need a better understanding of travel pattern changes due to COVID

Current Conditions: Market Analysis

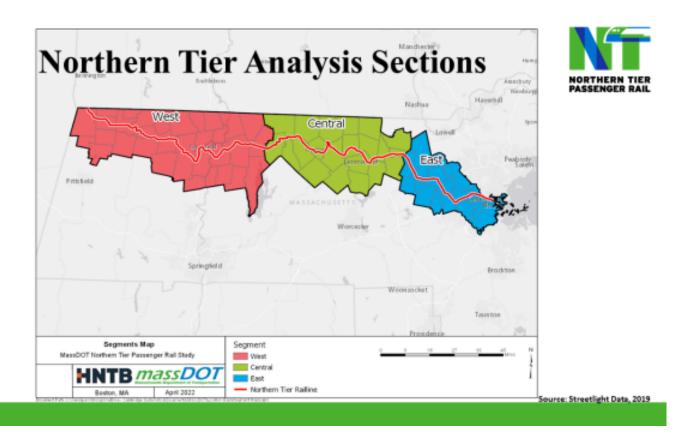
- Corridor Demographics
 - Population
 - Cost of Living
 - o Zero Car Households & Poverty Levels
 - o Employment and Economic Development
 - o Tourism and Major Attractions
 - o 2020 to 2040 Forecasts
- Travel Patterns Overview
 - o Overall Traffic Patterns
 - o Travel by Vehicle

Notes on Demographic Data

- All data represents pre-COVID conditions (2019)
 - Full impact of COVID on society and travel patterns being evaluated
 - Team will be monitoring trends tied to commuting patterns, other travel patterns, employment trends, etc

- Using most current MassDOT-approved population and employment forecasts by UMass Donahue Institute
 - Updated forecasts that incorporate the 2020 Census and potential COVID impacts are in development

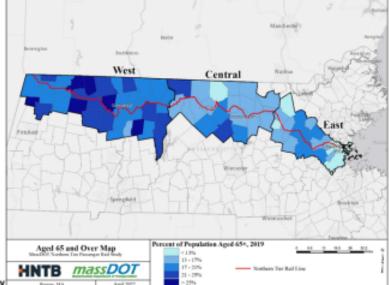
Corridor Demographics



Corridor Demographics: Population



- 1,751,000 total population
 - 106,000 in West
 - · 237,000 in Central
 - 1,408,000 in East
- High growth in East between 2010-2020
- Low growth and decline in West and Central
- · Higher % 65+ farther west



Source: American Community Survey

Cost of Living, Zero Car Households, Population Below Poverty Level



Why do we look at these for a passenger rail study?

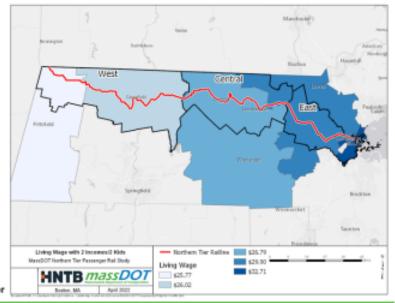
- Cost of Living Potential rail ridership estimates require a value of each passenger's time and how increases in time traveling can be offset by lower costs
- Zero Car Households Indication of people who need travel options
- Population Below Poverty Level Indication of people who rely on travel options and areas that may benefit from increased access to jobs

Cost of Living by County



Compared to Statewide Average:

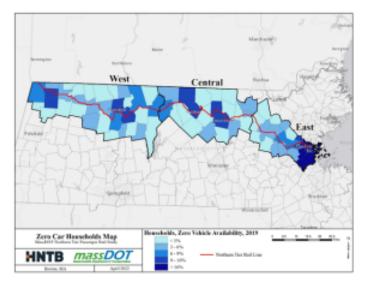
- 18% lower in Berkshire & Franklin Counties
- 15% lower in Worcester County
- 5% lower in Middlesex County
- 4% higher in Suffolk County

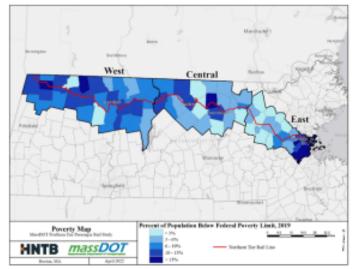


Source: MIT Living Wage Calculator

Zero Car Households & Population Below Poverty Level





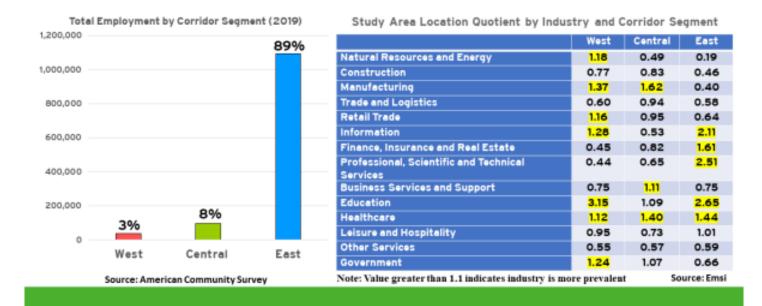


Source: American Community Survey

Source: American Community Survey

Employment and Economic Development





Partial List of Major Attractors



West

- Massachusetts Museum of Contemporary Art
- Clark Art Institute
- Berkshire East Mountain Resort
- Franklin County Fairgrounds
- Baystate Franklin Medical Center

Central

- University of Mass Memorial Health Alliance Clinton Hospital
- Wachusett Mountain & Resort
- Great Wolf Lodge
- · Fitchburg State University
- · Heywood Hospital

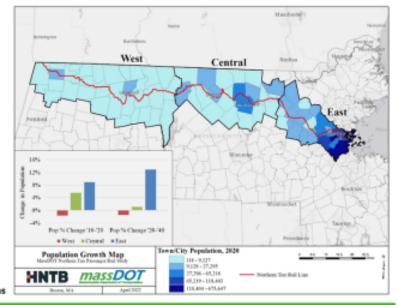
East

- TD Garden
- Freedom Trail
- Harbor Islands
- Fenway Park
- Boston Marathon
- Massachusetts General Hospital
- · Longwood Medical Area
- Need to consider the different trip making patterns
- Will identify access issues and opportunities

2020 to 2040: Projected Population Changes



- Growth in job opportunities fuel population growth in East segment
- Slower growth in West and Central segments

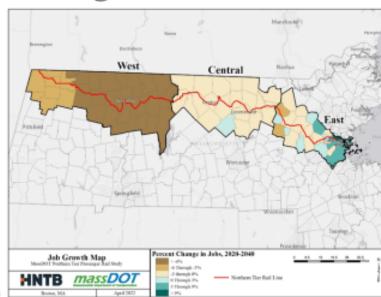


Source: American Community Survey, UMDI Projections

2020 to 2040: Projected Employment Changes



- Corridor follows nationwide trend seeing concentration of new jobs in urbanized areas
- Aging population and loss of younger workers may reduce employment pool in West and Central segments by 2040



Source: UMDI Projections

Questions and Comments

- How do you see this information aligning with the study goals and objectives?
- Of the information provided, what do you see as the most important for planning passenger rail service?
- Should we look at any additional data in more detail?

Overview of Data Sources



- Location-based Services (LBS):
 - Streetlight Data Anonymized location records from smart phones and navigation devices
 - INRIX Location-based data and analytics such as travel time and traffic conditions
- American Community Survey (ACS) Journey to Work —
 Developed by the U.S. Census Bureau based on five-year average of survey results between 2015-2019

Using LBS Data to Understand Travel Patterns



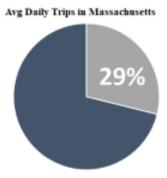
Streetlight Data –

- Purchases GPS data from cell phone providers and app developers
- Identifying data is removed creating anonymous data
- Company's algorithm pieces GPS data together into different trips
- Penetration rate (% of travelers with measured devices) is not 100%
 - Streetlight Data needs to be calibrated to traffic count stations or other known data points



Travel in the Corridor vs. Massachusetts (Pre-COVID)







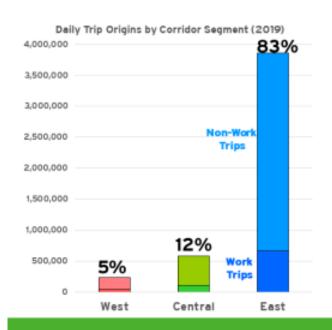
29% of trips in Massachusetts have an Origin or Destination in the Northern Tier Communities

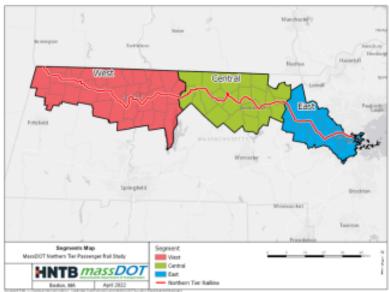
Northern Tier Corridor Other MA Trips

Source: Streetlight Data, 2019

Overview of Travel in the Corridor





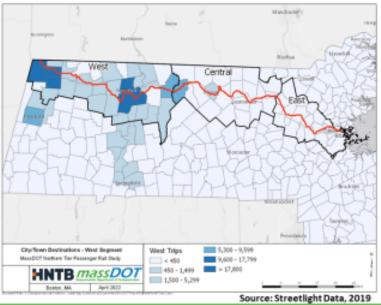


Source: Streetlight Data, 2019

Travel in the West Segment

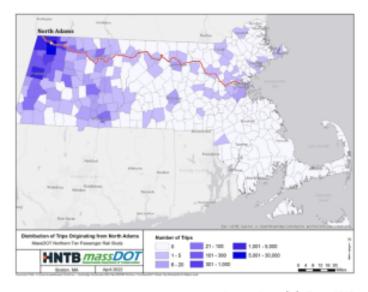


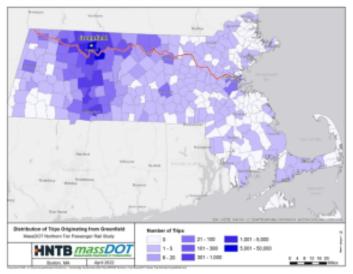




Travel from North Adams & Greenfield





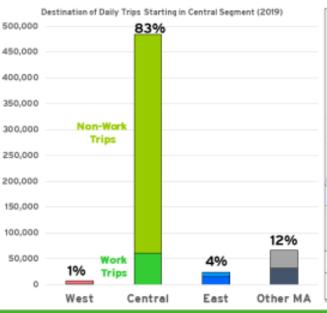


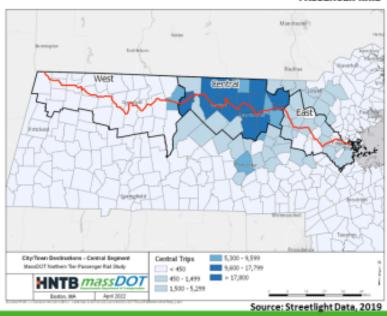
Source: Streetlight Data, 2019

Source: Streetlight Data, 2019

Travel in the Central Segment

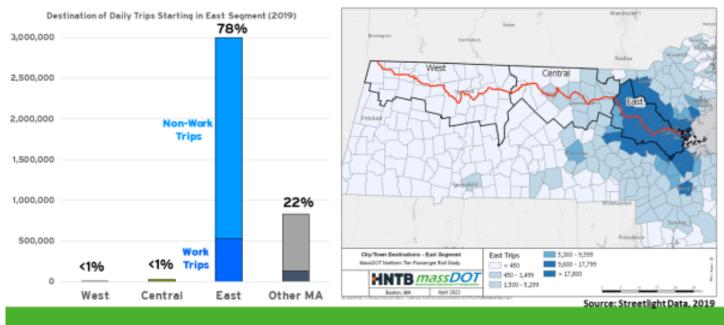






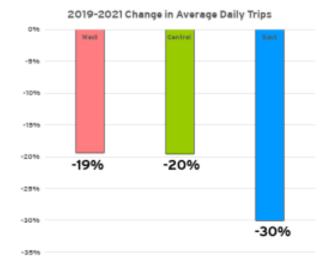
Travel in the East Segment





COVID's Broad Impact on Travel





2019-2021 Change in Average Daily Trips

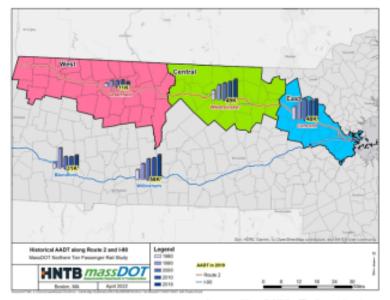
	2019	2021
West	236,224	190,417
Central	581,403	467,503
East	3,860,075	2,699,499

Source: Streetlight Data, 2019 and 2021

Travel in the Corridor by Vehicle



- Historical Average Annual Daily Traffic (AADT) counts; highlighted numbers represent 2019 data
- Highest mode share for daily travel in the corridor (92% in the Central segment)
- 92% of households have access to a vehicle in West and Central segments
- Congestion delay most prevalent between Fitchburg and Boston



Source: MassDOT Traffic Count Stations

North Adams to Boston Route Choice



	Route	Percent Trips	Length (mi)	Travel Time (HH:MM:SS)	Avg TT	Min TT	Max TT	Reliability
	1 - Rt. 2 Corridor	80%	120	2:31:10	2:34:37	1:58:20	3:30:42	1.12
	3 - 1-90 & 1-91	8%	149.26	2:42:25	2:45:23	2:12:50	3:33:42	1.08
	4 - I-90 & Rt. 7	7%	147.81	2:46:10	2:46:45	2:29:49	3:13:16	1.02
Connect Average Andrews	Pour	5%	ester	Lowell 1	2:48:12 Haverhill wence Peable Lynn Medford Medford Ouincy Ouincy	of the oth- significan	3:15:43 & 5 are miner routes with t change in tr	h no
	Brogada Way Hospital	المسمسر	M Re	Mond gional	Shore Hospit		9	Source: INRIX

Travel Patterns Overview

Travel Patterns Overview

- Motor vehicles are predominant mode of travel, especially west of I-495
- Most travel in the corridor is local (same county or adjacent)
- Travel volumes along Route 2 have grown closer to Boston but stagnated farther west
- Travel options beyond motor vehicle are limited west of Fitchburg

Market Analysis: Findings & Conclusions

- Lack of Transportation Options
 - Intercity travel choices west of Fitchburg are limited outside of personal vehicle use
- No Unified Corridor Travel Behavior
 - Trips leaving each segment more likely destined to communities outside the Route 2 Corridor
- Population and Employment Declines Expected to Decrease Travel Demand from Worcester County Westward
 - Based on current projections, underlying demographic dynamics could reduce major growth in these areas of the corridor

Current Conditions: Ownership, Operations, Right-of-Way

- Overview of the CSX Acquisition of Pan Am Railways
- Current freight and passenger operations

CSX Acquisition of Pan Am Railways



- As of June 1st CSX has acquired Pan Am Railways (PAR)
- Pan Am Railways' 1,200-mile rail network through New York, Massachusetts, Connecticut, Vermont, New Hampshire, and Maine now part of CSX's much larger 21,000-mile network serving the eastern United States and parts of Canada
- CSX assumes PAR's half ownership of the Pan Am Southern LLC (PAS)
 - PAS is a separate railroad jointly owned by Norfolk Southern that operates freight service from Ayer, MA into Vermont and New York State
 - PAS owns the right of way between Fitchburg and North Adams

Freight and Passenger Operations



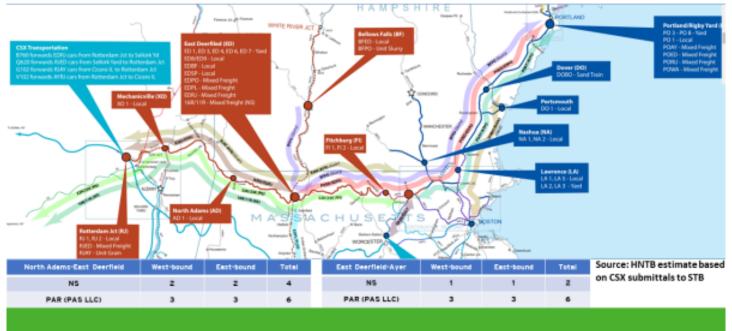


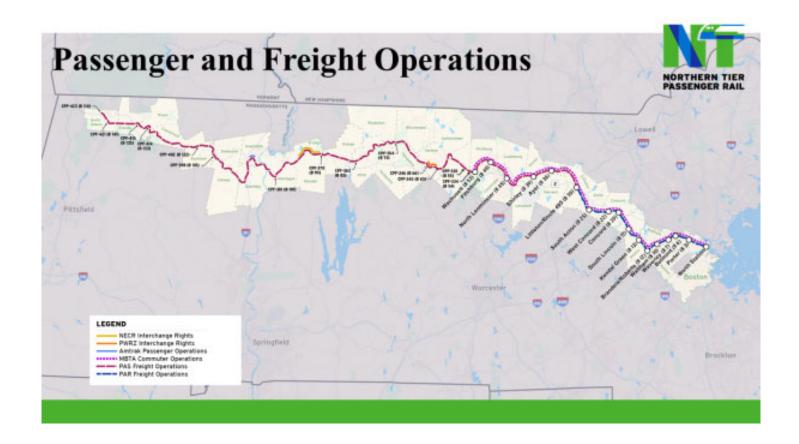


- Existing MBTA Commuter Rail Operations between Wachusett and Boston North Station
- 34 daily passenger trains
- Pan Am Southern/Pan Am Railway operations on the Northern Tier consist of approximately ten trains daily, including local freight operations.
- · Primary facilities located in East Deerfield and Ayer

Pan Am System Freight Operations







Ownership, Maintenance and Dispatching



- Dispatching responsibility does not always align with ownership
- PAS performs dispatching on the MBTA-owned stretch from Ayer to Fitchburg
- Arrangement dates back to sale of the line to the MBTA in 1976
- MBTA has the right to assume dispatching responsibilities under some circumstances

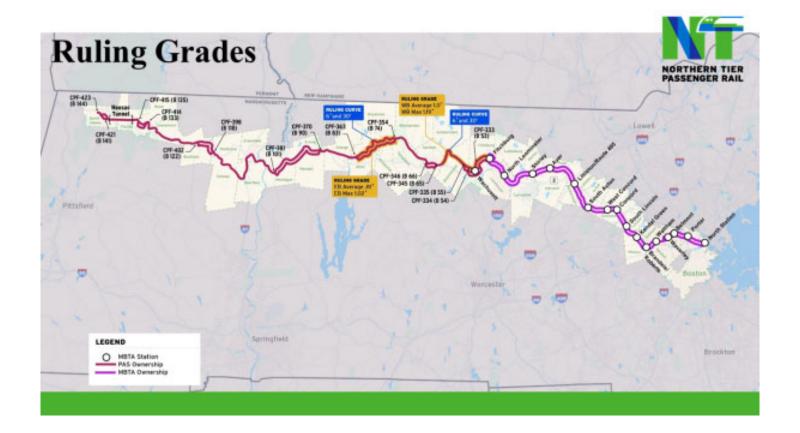




Right-of-Way – Ruling Grades



- Ruling grade is an uphill grade that imposes a limit on the weight and size of a freight train
- · May require operation of lighter and more frequent freight trains
- · Heavier trains will be slower on uphill grades
- · Both have impacts on passenger rail service



Grade Crossings



- · 78 total active grade crossings
- Active warning devices typically include flashing lights and potentially gates such as flashing lights on signs
- Passive warning devices typically include railroad cross-buck signs, stop signs and other warning devices that alert a driver or pedestrian that a grade crossing is present

	West	Central	East
Active	15	11	31
Passive	4	4	13

Ownership, Operations, Right-of-Way: Findings & Conclusions

- Track, Structures and Signals Could Support Passenger Service
 - The Track, Structures and Signals that allow a given Class of track and freight train speeds generally allow for passenger train speeds that are higher than freight speeds
 - The Maximum Authorized Speed on a section of track may be reduced in some areas because of curvature, grades and approaches to meeting points on single track
 - Significant sections of single track reduce the capacity of the railroad and reduce flexibility for passenger train schedules
- Existing Handoff Between Passenger and Freight Dispatching a Successful Model
- CSX Acquisition of Pan Am Railways May Bring Benefits (shifting trains to B&A) and Drawbacks (new shared ROW requirements)

Questions and Comments

- How do you see this information aligning with the study goals and objectives?
- Of the information provided, what do you see as the most important for planning passenger rail service?
- Should we look at any additional data in more detail?

Issues and Opportunities Discussion

- Current conditions and issues simultaneously present potential opportunities and constraints, including the ownership of the corridors and the state of the right-of-way infrastructure
 - CSX Acquisition may shift trains to B&A and may impose drawbacks such as new shared ROW requirements

- The current right-of-way could support passenger service, but it has been maintained for freight service with grades, curves and single track that could limit the quantity or raise the cost of good passenger service
- Existing handoff between passenger and freight dispatching on the Northern Tier has been a successful model, but new ownership may change the model
- Many passenger train station locations may be able to host new stations
- Existing governance, regulatory and funding structures could support Northern Tier passenger service, including Amtrak access rights on freight railroads
- A new state Western Massachusetts Passenger Rail Authority could promote development of new passenger services

Questions for Working Group

- What do you see as the primary existing constraints and elements to be considered?
- What do you see as the opportunities to address these issues?
- What datasets should we consider while developing the potential service plans and alternatives?

Next Steps

- 1. **Public Involvement:** Fall 2021 Spring 2023
- 2. Documenting Past Efforts: Fall 2021 Winter 2022
- 3. **Current Conditions Market Analysis:** Winter 2022 Spring 2022
- 4. Current Conditions Physical, Regulatory and ROW Ownership: Winter 2022 Spring 2022
- 5. Development of Potential Service Plans and Alternatives: Spring 2022 Winter 2023
- **6. Alternatives Evaluation and Cost Estimates:** Summer 2022 Winter 2023

7. **Development of Recommended Next Steps:** Winter 2023 - Spring 2023

Working Group Meeting Topics and Schedule

Spring 2022 (Today's Meeting)

Current Conditions (Market Analysis + Physical Conditions)

Summer 2022

Review Phase 1 Service Concepts

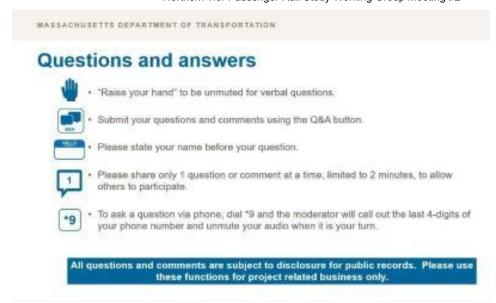
Winter 2023

Review Phase 2 Service Concepts

Spring 2023

Review Draft Recommended Next Steps

Public Comment



Q&A Controls.

We want to hear from you!

Use the "Study Website" button to access the study website.

Study Website

Use the **"Comment Form"** button submit comments and questions to the study team.

Comment Form